Treatment of Chronic Osteomyelitis (COM): Rwanda Experience of in situ sterile Plaster of Paris (POP) pellets containing antibiotics

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Background: COM constitutes a serious public health burden in developing countries. Diagnosis of acute OM is often missed in primary care and patients are referred at a late stage of COM in referral hospitals, thus requiring heavy, long and costly treatment. Treatment in many developing countries is not standardized and patients' outcomes are often poor.

Methods: From June 2000 to March 2001, 67 patients diagnosed with COM at the University Teaching Hospital of Kigali, Rwanda were placed into two treatment groups:

Group 1 (34 patients) received ''classic treatment,'' sequestrectomy, surgical toilet, and closing of the wound over sucking drains. Patients also received I.V. antibiotics until the wound healed and then received wide spectrum oral antibiotics until normalization of the ESR.

Group 2 (33 patients) were also treated by sequestrectomy, surgical toilet, and closing of the wound over sucking drains. The latest was given 24 hours I.V. antibiotics as prophylaxis, received in situ sterile POP pellets containing fusidic acid plus oxacillin or amoxicillin. All patients were discharged when the wound was closed and fistula dried. Patients were followed post-operatively after 20 months.

Results: Of all patients, 37% were referred by a health professional, 21% had selfmedicated, and 42% were first treated by a traditional practitioner.

The majority of cases were misdiagnosed as acute osteomyelitis (Group 1, n=22; Group 2, n=27).

Aureus Staphylococcus was the most frequent germ(Group 1, n=22; Group 2, n=22): 39% were oxacillin resistant; 5% were fusidic acid resistant; none were vancomycin resistant.

Hospital stay was significantly (p=.0008) longer for Group 1 (32 days) compared to Group 2 (18 days) patients.

Wound healing was significantly (p=.0017) longer for Group 1 (48 days) compared to Group 2 (36 days) patients.

At 20-month follow-up, treatment failures and infection recurrence was significantly (p=.0017) higher for Group 1 (n=15) compared to Group 2 (n=6).

Excellent results (wound healing and fistula dried) were obtained in 58% of Group 1 patients compared to 87% of Group 2 patients.

Conclusion: In situ sterile POP pellets containing antibiotics is an effective and cost-efficient alternative treatment for COM and is suitable for resource poor healthcare settings.

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Shiga-toxin producing *Escherichia coli* in fresh milk from small-holder dairy farms in Kaduna, Nigeria

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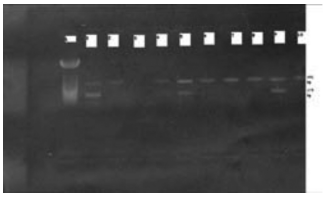
Background: Untreated milk is a good source of transmission of human and animal disease causing agents. In Nigeria, milking of cows is generally done using unhygienic procedures and pastuerization of milk is rarely done. Shiga toxin-producing *Escheriachia coli* are foodborne pathogens associated with hemorrhagic colitis and hymolytic-uremic syndrome. We conducted a study to determine hygienic practices during milking, assess the microbial quality and presence of *E.coli* in fresh milk from samllholder dairy farms in Kaduna.

Methods: We used a multistage cluster sampling to select forty farms from three senetorial districts in Kaduna State. Fifteen milk samples collected from each farm were analyzed for total plate (TPC), and coliform counts (CC), and presence of *E. coli*. The *E. coli* isolates were analyzed for the presence of virulent genes by polymerase chain reaction. Data on variables that describe the milking facilities and hygienic practices during milking were obtained. The mean TPC and CC were normalized by a logarithm base ten transformation and used as dependent variables. Independent sample t-test and one way analysis of variance were used to check associations.

Fig. 1 PCR amplifications from the E. coli isolates.



Results: Thirty eight (98%) farms milked cows by hand and had TPC and CC of 5.5±0.17 and 3.46±11. In the 23 (57.5%) farms that washed the cows' udders before milking, TPC and CC were 5.39±0.09 and 3.38±0.15, while in farms that did not wash, TPC and CC were 5.65±0.15 and 3.51±0.08 ($p<0.05$). TPC and CC of farms that never examined the udders before milking, 5.61±0.18 and 3.47±0.10, and those that always examined the udders, 5.30±0.12 and 3.46±0.11, were statistically significant ($P<0.05$). Four (40%) of *the E. coli* isolates were positive for *Stx2d* genes.

Fig. 2 PCR amplifications from the E. coli isolates